Remarks

Claims 1-23 are pending in the application. Claims 1-23 are rejected. The Drawings are objected to. All rejections and objections are respectfully traversed.

The Examiner objects to the Drawings for failing to show the claimed means for generating a plurality of sequences of touch samples. However, the claimed means are shown in Figure 1 as item 110. As a plurality of users touch the touch sensitive surface 110, a plurality of sequences of touch samples are generated. The touch sensitive surface of a preferred embodiment of the invention is one such as is described in U.S. Patent No. 6,498,590, "Multi-user touch surface," issued to Dietz et al. on December 24, 2002, and incorporated into the current Application by reference on page 2 of the Specification.

Dietz et al. describes a multi-user touch system that differentiates between multiple touches of a single user and the touches of multiple users, see Dietz et al., Abstract:

> A multi-user touch system includes a surface on which are a pattern of mounted antennas. A transmitter transmits uniquely identifiable signals to each antenna. Receivers are capacitively coupled to different users, the receivers are configured to receive the uniquely identifiable signals. A processor then associates a specific antenna with a particular users when multiple users simultaneously touch any of the antennas.

Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The Examiner states that the Specification offers insufficient explanation as to how the sequences of samples are identified with a particular user.

As was stated above, U.S. Patent No. 6,498,590, "Multi-user touch surface," issued to Dietz et al. was incorporated by reference into the current Application and provides sufficient explanation of the system and method for identifying the sequences of samples with a particular user. Applicants respectfully request that the Examiner withdraw this rejection.

Claims 1, 3, 4, 6, 19 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Geaghan et al., U.S. Patent Application Publication No. 2003/0063073 (Geaghan).

Geaghan describes a method for discriminating single touch events on a touch sensitive surface from multiple touch events on the touch sensitive surface. 'Phantom' touches, touch events interpreted by a system as a single touch when they are actually an average of multiple touches, are distinguished from multiple touch events by, for example, comparing the *total* measured current through the touch sensitive surface to several predetermined thresholds.

In Geaghan, single touch events are assumed to generate a *total* measured current within a range between predetermined minimum and maximum

thresholds, and multiple touch events are assumed to generate a *total* measured current that exceeds the maximum threshold for a single touch event. If the *total* measured current through the touch sensitive surface rises above a predetermined threshold, e.g., the maximum current likely to be generated by a single touch, the system does not report any touch events because the *total* measured current is more likely due to multiple touches to the surface and any touch event reported would be an average of the actual touch events, i.e., a 'phantom' touch event. The locations of the multiple touch events are not reported until the system acquires further data, e.g., the system detects a 'lift-off' event, and is able to back-calculate the positions of the actual touches.

Regarding claim 1, claimed is means for generating a plurality of sequences of touch samples when a plurality of users simultaneously touch the touch sensitive surface.

The Examiner states:

> **Figure 1 and**
>
> **Paragraphs [0047]-[0052] explain that a first and second sequence of signals are generated for first and second touches.**

However, Applicants can find no description in Geaghan of first and second sequence of signals generated for first and second touches when a plurality of users simultaneously touch the touch sensitive surface. In fact, it is clear that the system of Geaghan uses one signal, the *total* measured current, to

distinguish single touches from multiple touches when touch events overlap, see Geaghan, pp. [0046]-[0052].

For example, at paragraph [0036], Geaghan states:

> If during a given time interval the first and second touch locations are both pressed (i.e., the first and second touches temporally overlap), then the first and second sets of signals are superimposed for that time interval, resulting in a third set of signals.

A superimposition of first and second overlapping sets of signals is a sum of the signals, and a sum of signals cannot be a plurality of sequences of samples.

Also, at paragraph [0066], Geaghan states:

> **[0066]** When a second person **25B** touches the sensor at a location B while person **25A** is holding, the overall current flowing through the power supply, as well as the four currents flowing through the four comers of the sensor generally increase.

and

> Thus, when two users touch simultaneously, the measured touch position is incorrect because the system effectively calculates the average of the two touched positions.

The above shows that the system of Geaghan does not determine a plurality of sequences of samples when a plurality of users touch the touch sensitive surface. A plurality of signals, such as is claimed, would not have the problems as described in Geaghan. Geaghan does not teach means for

generating a plurality of sequences of touch samples when a plurality of users simultaneously touch the touch sensitive surface.

Continuing with claim 1, claimed is each sequence of samples being *identified* with a particular user generating the sequence of samples. Again, Applicants refer to U.S. Patent No. 6,498,590, "Multi-user touch surface," issued to Dietz et al. and incorporated by reference into the current Application, as it provides sufficient explanation of the system and method for *identifying* the sequences of samples with a particular user.

The system of Dietz does far more than merely differentiate between single touch events and multiple touch events on a touch sensitive surface. In the system of Dietz, each of a plurality of sequences of touch samples is *identified* with a particular user. That is, the system can tell not only when more than one person is touching the surface, but also can tell *who* is touching *where*.

Nowhere in Geaghan is described each sequence of touch samples being *identified* with a particular user generating the sequence of touch samples. The Examiner states that determining "the location of each of the touches" is "associating the touch with one of the users." This is simply not the case. While the system of Geaghan may be able to determine when a multiple touch event is occurring and to back-calculate the locations of the individual touches, those actions do not teach identifying the touches with a particular user.

A careful examination of Figures 4 and 8, and the associated description in paragraphs [0065]-[0069], makes it abundantly clear that the Geaghan device is totally incapable of associating multiple simultaneous touches with specific multiple users. Geaghan only measures the total current flowing from the power supply 14 to ground via the four corners of the sensor 11. As more users touch the sensor, the total current flow increases.

Geaghan does not measure individually the amount of capacitive coupling between the users 25A-25B and ground. This makes it completely impossible for Geaghan to associate individual touches with individual users when multiple users touch the sensor simultaneously, as claimed. One of ordinary skill in the art examining the circuits shown in Figures 4 and 8 would immediately realize that Geaghan can never associate touch events with specific users.

A simple example will illustrate this point. Imagine a computer program in the form of a bubble-popping game. 'Bubbles' having different point values are displayed on a touch sensitive surface and users score points by touching, or 'popping,' the bubbles. At some point during the game, User A touches a yellow bubble worth 50 points while, simultaneously, User B touches a green bubble worth 100 points.

The system as described by Geaghan would be able to ascertain that the yellow and green bubbles were touched because the *total* measured current would be greater than the predetermined maximum threshold likely for a single touch event. After back-calculating the locations of the actual touches,

the system of Geaghan could determine that the two locations correspond to the yellow and green bubbles. However, the system would not know to whom to award the points. Merely determining locations of touch events is insufficient to identify the touch events with the users creating the events.

In contrast, the system of Dietz would be able to allocate 50 points to User A and 100 points to User B. The system of Dietz does not rely on *total* measured current through the touch sensitive surface. Through capacitive coupling of users and antennas embedded in the touch sensitive surface, the system of Dietz is able to uniquely identify each signal with a particular user. The system of Dietz does not merely differentiate between single and multiple touch events; it is able to identify each sequence of touch samples with a particular user generating the sequence of touch samples.

This functionality is clearly not taught by Geaghan. Geaghan only measures a *total* current through the system and compares that to predetermined thresholds. Geaghan cannot anticipate the claimed invention.

Also claimed is means for determining a decision with respect to a conflict affecting a next state of the particular item according to the events from the plurality of users, the state and the policy.

With all due respect, it seems that the Examiner has misunderstood the claimed invention. Geaghan provides a system able to discriminate single touch events on a touch sensitive surface from multiple touch events on the touch sensitive surface. The claimed invention, which is also able to

differentiate between single and multiple touch events, goes further than the system of Geaghan by identifying the individual touch events with particular users and resolving conflicts when the commands generated by the touch events are not compatible with each other.

The term *conflict*, as used in the current Application, is more complex than merely distinguishing when multiple touch events are occurring simultaneously; it denotes incompatible commands made by multiple users to an application running on the system including a touch sensitive display surface. For example, User A may want to move a document displayed on the touch-sensitive surface to the right, while User B may want to move the displayed document to the left. This is a *conflict*. The fact that User A and User B are simultaneously using and touching the surface is not a *conflict*.

The Examiner states that "a conflict occurs when two users touch the screen at the same time and that the touch can be seen to happen intermediate of the two locations." According to Geaghan, when two users touch the touch sensitive surface, a 'phantom' touch or average of the two touches, may be reported. A 'phantom' touch is an *error*, not a *conflict*. In fact, Geaghan describes this circumstance as an error, see paragraph [0066]:

> Thus, when two users touch simultaneously, the measured touch position is incorrect because the system effectively calculates the average of the two touched positions.

The system of Geaghan does not teach the claimed means for determining a decision with respect to a conflict. Using the example introduced above, the

system of Geaghan would not be able to resolve the conflict of two users trying to move a displayed document. The system of Geaghan would only be able to determine that multiple (unidentified) users were touching the displayed document. This teaches nothing for the problem, i.e., the *conflict*, of what should happen to the displayed document. The claimed system, on the other hand, provides a solution for this circumstance based on the policy of the item. Geaghan cannot anticipate the claimed invention.

Regarding claim 3, claimed is the graphic multi-user interface of claim 1, in which the particular item is active when a particular user is touching the particular item. In an embodiment of the invention as claimed, sequences of samples identified with a particular user are generated when the particular user touches the touch sensitive surface. The sequences of samples are associated with an item having an associated state and policy, and the item is active when the particular user is touching the particular item.

As was shown above, Geaghan does not teach a sequence of samples identified with a particular user. The system of Geaghan only produces locations of the touch events. Geaghan is incapable of identifying the touch data with a particular user. Geaghan does not teach the claimed item being active when a particular user is touching the particular item.

Regarding claim 4, claimed is the graphic multi-user interface of claim 1, in which one particular user generates multiple sequences of samples for multiple touches.

As was discussed above, the system of Geaghan only uses the total measured current flowing from the touch sensitive surface to ground, see Figure 4. A total measured current is a single signal, and not multiple sequences of samples for multiple touches. The system of Geaghan determines the locations of multiple touches by subtracting out known locations from the total measured signal. Multiple sequences of samples are never taught in Geaghan. Geaghan cannot anticipate the claimed multiple sequences of samples for multiple touches.

Regarding claim 6, claimed is the graphic multi-user interface of claim 5, in which each sample includes a speed and trajectory of the touch.

The Examiner has failed to show that Geaghan teaches, either expressly or inherently, the elements of claim 5, namely, each sample including a user ID, a time, a location, an area and a signal intensity of the touch. In fact, the Examiner includes claim 5 in his rejections under 35 U.S.C. 103(a), implying that the Examiner believes that Geaghan does not teach the elements of claim 5. Applicants respectfully request that the Examiner withdraw this rejection.

Regarding claim 19, claimed is the graphic multi-user interface of claim 1, in which the decision is based on a signal intensity of the events.

Again, a 'phantom' touch or average of the two touches as disclosed in Geaghan is an *error*, not a *conflict*. The system of Geaghan does not teach the claimed means for determining a decision with respect to a conflict, and

would not be able to resolve the conflict of two users trying to move a displayed document. The system of Geaghan would only be able to determine that two (unidentified) users were touching the displayed document. This teaches nothing for the problem, i.e, the *conflict*, of what should happen to the displayed document. The claimed system, on the other hand, provides a solution for this circumstance based on the policy of the item, or as in the case of claim 19, based on the signal intensity of the touch events. Geaghan cannot anticipate the claimed decision is based on a signal intensity of the events.

Regarding claim 23, the arguments stated above for claim 1 are equally applicable. Geaghan cannot anticipate the claimed invention.

Claims 2, 5, 7-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geaghan.

Regarding the rejections of claims 2, 5, 7-18 and 20-22 under 35 U.S.C. 103(a), the Examiner provides no support for his rejections. Applicant can find nothing in the Office Action or the Geaghan reference that relates to the rejections of claims 2, 5, 7-18 and 20-22.

The Examiner's assertions are nothing more that an omnibus rejections and provides no reasonable level of understanding of the basis for the Examiner's position. As recognized in MPEP 707.07(d), "omnibus rejection of the claim ... is stereotyped and usually not informative and should therefore be avoided."

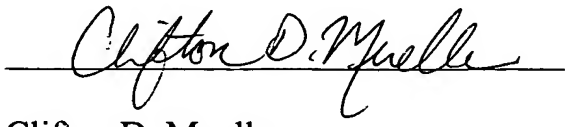
MPEP 707.07(g) further mandates that "[w]here a major technical rejection is proper, it should be stated with a full development of the reasons rather than by a mere conclusion coupled with some stereotyped expression." The rejection by the Examiner is a mere conclusion, without a full development of reasons.

MPEP 706.07 further makes clear that "the invention as disclosed and claimed should be thoroughly searched in the first action and the references fully applied."

In the present Office Action, the rejection fails not only to provide a reasonable rationale as to how, in the examiner's view, the applied art can be construed to teach each and every feature in the rejected claims, but the rejection also fails to even consider explicitly claimed features of the invention as recited in claims. Applicants respectfully request that the Examiner withdraw his rejections.

It is believed that this application is now in condition for allowance. A notice to this effect is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicants' agent at the number listed below. Please charge any shortage in fees due in connection with the filing of this paper to Deposit Account 50-0749.

Respectfully submitted,
Mitsubishi Electric Research Laboratories, Inc.

By 

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